Cooperation

This exercise serves as an introduction to NetLogo. In this simulated model there are two types of cows, greedy and cooperative. We want to investigate the circumstances under which being greedy (or being cooperative) is more beneficial to the respective populations. *Brief* answers to the questions are fine; a sentence or two will suffice.

1. Download and install the Netlogo software from `http://ccl.northwestern.edu/netlogo/index.shtml`.
2. Open the Models Library. In the Social Science folder, open the "Cooperation" model.
3. On the "Info" tab, read about the model.
4. Run the model with the default settings. Which population "wins" when the model reaches steady–state?
5. Our goal is to find settings for which it is better to be a member of the cooperative population. Let's experiment with two controls, stride–length and metabolism.
   (a) Slowly decrease stride–length. What is the result for each population? Make sure you run the model long enough to observe steady–state behavior.
   (b) Set stride–length back to it's default value of 0.8. Now slowly increase metabolism. What is the result?
6. In general, do the results intuitively make sense? Are there any lessons that can be applied to humans and the planet?

Note: This is an evolutionary biology model. In the Prisoner's Dilemma model (later) we will investigate the consequences of individual decisions to be greedy (to act in one's own self interest) or to cooperate.